



STIC Search Report

EIC 1700

STIC Database Tracking Number: 191438

TO: Janis Dote

Location: REM 9C79

Art Unit : 1756

May 31, 2006

Case Serial Number: 10/749269

From: Kathleen Fuller

Location: EIC 1700

REMSEN 4B28

Phone: 571/272-2505

Kathleen.Fuller@uspto.gov

Search Notes

8 STRUCTURES FROM THE QUERY COVERING THE CLAIMS BROADLY.

3 CA REFERENCES FROM THE 8 STRUCTURES-ALL 3 ARE TO THE APPLICANTS.

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: JANIS DOTE Examiner #: 68274 Date: 5/30/06
 Art Unit: 1756 Phone Number 30 2-1382 Serial Number: 10749,269
 Mail Box and Bldg/Room Location: REM 9C79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organophotoreceptor with a charge transport material having two exo-epoxy epoxidated - hydrazone groups
 Inventors (please provide full names): _____

JUBRAN NUSRALLAH; TORARSKI, ZBIGNEW; GETAUTIS, VYTALITAS;
MALINAUSKAS, TADAS; JANKAUSKAS, VYGINTAS; GAIDELIS, VALENTINAS
 Earliest Priority Filing Date: 12/31/03

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search compound of claims 29- 34. *Attached*

See attached pages 24 and 25 of specification
 for compound in claim 31.

SCIENTIFIC REFERENCE BR
 Sci Tech Inf Ctr

MAY 31 RECD

Pat. & T.M. Office

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher: <u>L. Fuller</u>	J.D.	NA Sequence (#) _____	STN <u>1</u> _____
Searcher Phone #: _____		AA Sequence (#) _____	Dialog _____
Searcher Location: _____		Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: _____		Bibliographic _____	Dr. Link _____
Date Completed: <u>5/31/06</u>		Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>40</u>		Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____		Patent Family _____	WWW/Internet _____
Online Time: <u>32</u>		Other _____	Other (specify) _____

DATE 10/749269 05/31/2006 Page 1

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STRUCTURE FILE UPDATES: 30 MAY 2006 HIGHEST RN 886115-42-0
DICTIONARY FILE UPDATES: 30 MAY 2006 HIGHEST RN 886115-42-0

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

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*
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* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

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=> FILE HCAPL
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FILE COVERS 1907 - 31 May 2006 VOL 144 ISS 23
FILE LAST UPDATED: 30 May 2006 (20060530/ED)

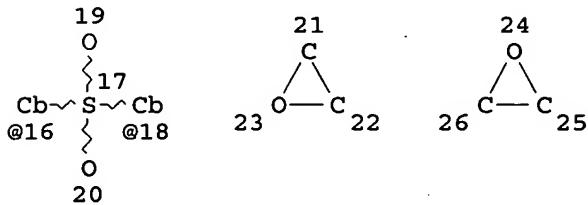
New CAS Information Use Policies, enter HELP USAGETERMS for details.

DATE 10/749269 05/31/2006 Page 2

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L6 STR

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1 2 3 4 5 6 7 8 9 @11 12 @15 13 14



8 structures from the
query

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VAR G2=10/11/15

NODE ATTRIBUTES:

CONNECT IS E3 RC AT 4
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CONNECT IS M3 RC AT 21
CONNECT IS M3 RC AT 26
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M1 N AT 10

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 26

STEREO ATTRIBUTES: NONE

L8 8 SEA FILE=REGISTRY SSS FUL L6
L10 3 SEA FILE=HCAPLUS ABB=ON L8

3 CA references

=> D L10 BIB ABS IND HITSTR 1-3

L10 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:13917 HCAPLUS

DN 144:117731

TI Polymeric charge transport materials having repeating units comprising an aromatic group and a -s- linkage

IN Jubran, Nusrallah; Tokarski, Zbigniew; Gaidelis, Valentas; Getautis, Vytautas; Malinauskas, Tadas; Montrimas, Edmundas; Law, Kam W.

PA USA

SO U.S. Pat. Appl. Publ., 29 pp.
CODEN: USXXCO

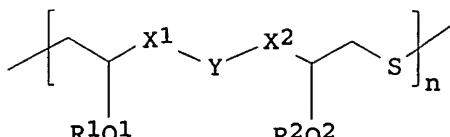
Applicant

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2006003241	A1	20060105	US 2004-883453	20040701
PRAI US 2004-883453		20040701		
GI				



I

AB Improved organo photoreceptor comprises an elec. conductive substrate and a photoconductive element on the elec. conductive substrate, the photoconductive element comprising: (a) a polymeric charge transport material having the formula I ($n = 1-100,000$ with an average value of greater than one; Y = aromatic group; X1 and X2 = a bond or a linking group; Q1 and Q2 = O, S, or NR; and R, R1, and R2 = H, alkyl group, alkenyl group, alkynyl group, acyl group, heterocyclic group, aromatic group); and (b) a charge generating compound. Corresponding electrophotog. apparatuses, imaging methods, and methods of preparing the polymeric charge transport material are described.

INCL 430058700; 430096000

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38

ST electrophotog photoreceptor polymeric charge transport material

IT Electrophotographic photoconductors (photoreceptors)
(electrophotog photoreceptors polymeric charge transport materials)

IT 122010-64-4P 683273-05-4P 741694-52-0P 857049-30-0P
857058-32-3P 857058-33-4P 867379-59-7P 868162-51-0P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 872552-29-9P 872552-31-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 68-12-2, Dimethylformamide, reactions 80-07-9, 4,4'-Dichlorodiphenyl sulfone 86-28-2, 9-Ethylcarbazole 90-93-7, Bis(4,4'-diethylamino)benzophenone 95-01-2, 2,4-Dihydroxybenzaldehyde 100-63-0, Phenylhydrazine 106-89-8, Epichlorohydrin, reactions 603-34-9, Triphenylamine 1762-95-4, Ammonium thiocyanate 4181-05-9, 4-(Diphenylamino)benzaldehyde 7803-57-8 52131-82-5, 9-(2,3-Epoxypropyl)carbazole
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 14052-65-4P, 4,4'-Dihydrazinodiphenyl sulfone 53566-95-3P 70207-46-4P 95640-42-9P 625077-91-0P 741694-54-2P 857058-42-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 872552-33-5P 872552-34-6P 872552-35-7P 872552-36-8P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of polymeric charge transport materials for electrophotog

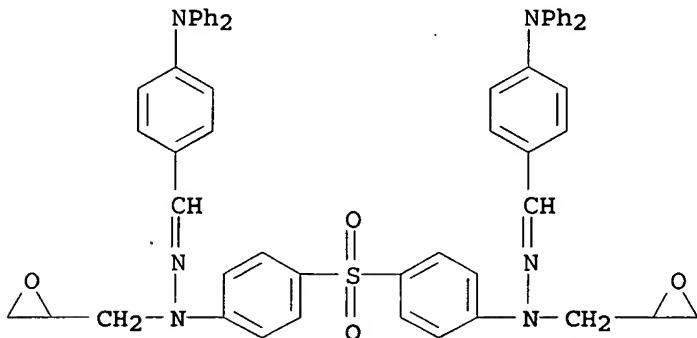
photoreceptors)

IT 857049-30-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of polymeric charge transport materials for electrophotographic photoreceptors)

RN 857049-30-0 HCAPLUS

CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



IT 872552-36-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of polymeric charge transport materials for electrophotographic photoreceptors)

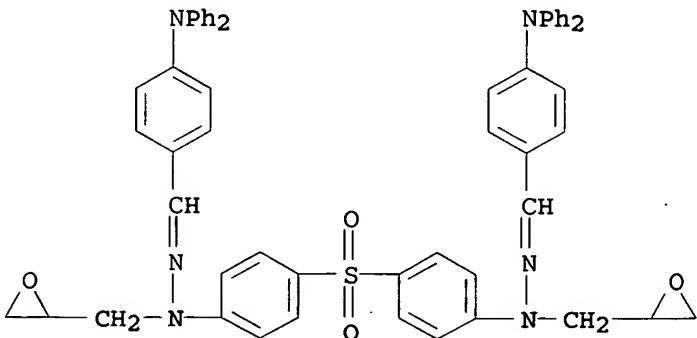
RN 872552-36-8 HCAPLUS

CN Ethanethioamide, polymer with 4-(diphenylamino)benzaldehyde (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

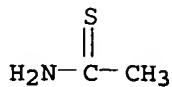
CMF C56 H48 N6 O4 S



CM 2

CRN 62-55-5

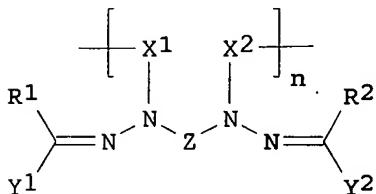
CMF C2 H5 N S



L10 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:954089 HCAPLUS
 DN 143:257010
 TI Organophotoreceptor with charge transport compositions
 IN Tokarski, Zbigniew; Montrimas, Edmundas; Grazulevicius, Juozas Vidas;
Jubran, Nusrallah; Malinauskas, Tadas; Gaidelis, Valentas; Getautis, Vytautas.
 PA Samsung Electronics Co., Ltd., S. Korea
 SO Eur. Pat. Appl., 36 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1
 PATENT NO. KIND DATE APPLICATION NO. DATE

 PI EP 1569040 A2 20050831 EP 2005-251084 2005022
 EP 1569040 A3 20051116
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, P,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, S,
 BA, HR, IS, YU
 US 2005191570 A1 20050901 US 2004-789077 2004022
 CN 1661483 A 20050831 CN 2005-10052538 2005022
 JP 2005242367 A2 20050908 JP 2005-55003 2005022
 PRAI US 2004-789077 A 20040227
 GI

applicante



1

AB The present invention provides organo photoreceptors comprising an elec. conductive substrate and photoconductive element on the elec. conductive substrate, the photoconductive element having (a) a charge transport composition with the formula I (Y1 and Y2 = arylamine group; X1 and X2 = linking group; R1 and R2 = hydrogen, alkyl group, alkenyl group, heterocyclic group, aromatic group; Z is a bridging group; and n = integers between 1 and 100,000 with an average value greater than 1); and (b) a charge generating compound Corresponding electrophotog. apparatuses and imaging methods (processes) are described, as are charge transport compns.

IC ICM G03G005-07
ICS G03G005-05; G03G005-06

Reprographic Processes)

ST electrophotog organo photoreceptor charge transport compn

IT Electrophotographic photoconductors (photoreceptors)
(organo photoreceptor with charge transport compns.)

IT 863396-31-0P 863396-32-1P 863396-33-2P
863396-34-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport compns. for organo photoreceptor)

IT 14052-65-4P, 4,4'-Dihydrazinodiphenyl sulfone 857049-30-0P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)

IT 80-07-9, 4,4'-Dichlorodiphenyl sulfone 106-89-8, Epichlorohydrin, reactions 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 4181-05-9, 4-(Diphenylamino)benzaldehyde 7570-45-8, 9-Ethyl-3-carbazolecarboxaldehyde 7803-57-8, Hydrazine hydrate 19362-77-7, 4,4'-Thiobisbenzenethiol
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)

IT 625077-91-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)

IT 863396-31-0P 863396-32-1P 863396-33-2P
863396-34-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport compns. for organo photoreceptor)

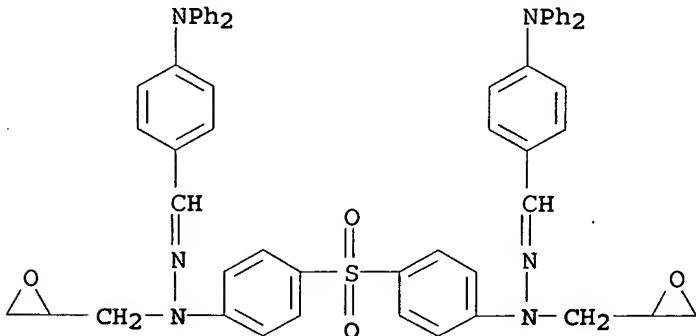
RN 863396-31-0 HCPLUS

CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 4,4'-thiobis[benzenethiol] (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

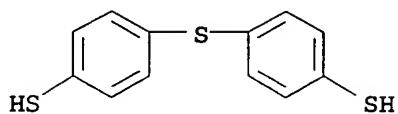
CMF C56 H48 N6 O4 S



CM 2

CRN 19362-77-7

CMF C12 H10 S3



RN 863396-32-1 HCAPLUS

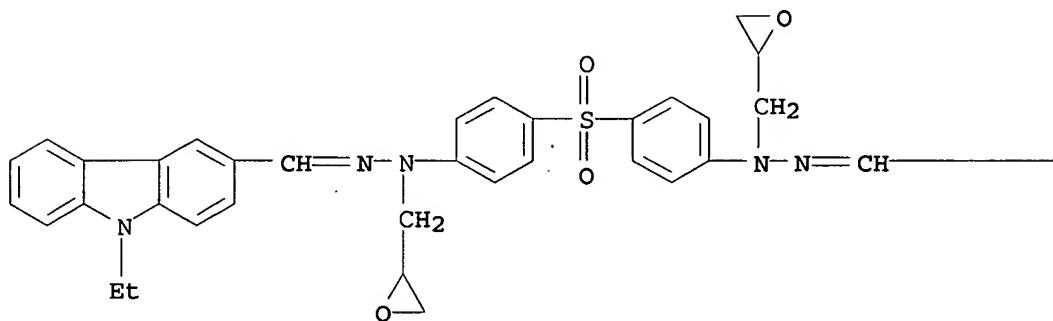
CN 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 4,4'-thiobis[benzenethiol] (9CI) (CA INDEX NAME)

CM 1

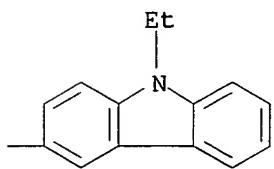
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CMF C48 H44 N6 O4 S

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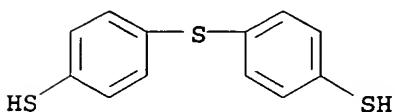
PAGE 1-B



CM 2

CRN 19362-77-7

CMF C12 H10 S3



RN 863396-33-2 HCAPLUS

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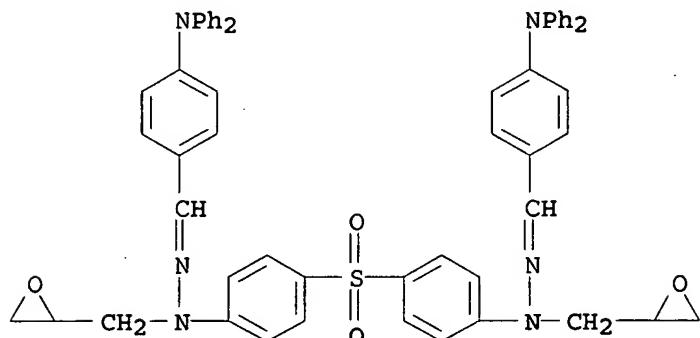
DATE 10/749269 05/31/2006 Page 8

1,3,4-thiadiazolidine-2,5-dithione (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

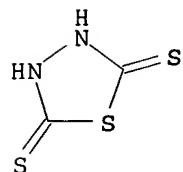
CMF C56 H48 N6 O4 S



CM 2

CRN 1072-71-5

CMF C2 H2 N2 S3



RN 863396-34-3 HCPLUS

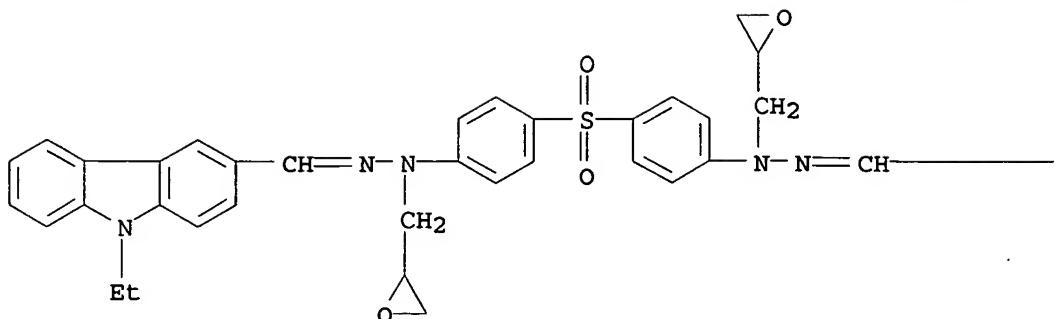
CN 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 1,3,4-thiadiazolidine-2,5-dithione (9CI) (CA INDEX NAME)

CM 1

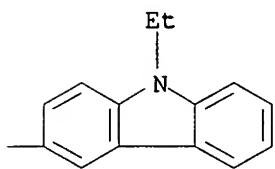
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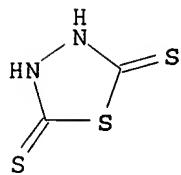
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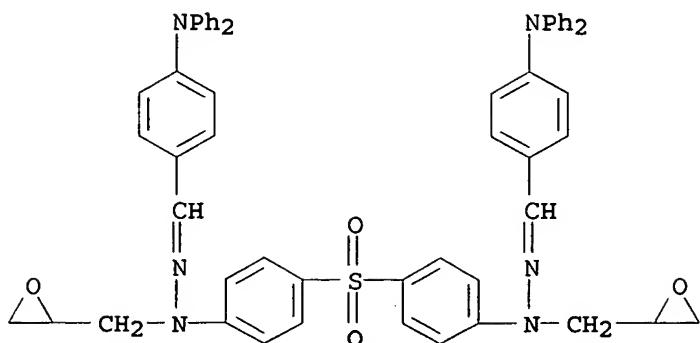
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CM 2

CRN 1072-71-5
CMF C2 H2 N2 S3

IT 857049-30-0P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of charge transport compns. for organo photoreceptor)
 RN 857049-30-0 HCAPLUS
 CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



L10 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:582539 HCAPLUS

DN 143:106306

TI Organo photoreceptor with a charge transport material having two epoxide-hydrazone groups

IN Jubran, Nusrallah; Malinauskas, Tadas; Gaidelis, Valentas; Jankauskas, Vygintas; Tokarski, Zbigniew; Getautis, Vytautas

PA Samsung Electronics Co., Ltd., S. Korea

SO Eur. Pat. Appl., 25 pp.

CODEN: EPXXDW

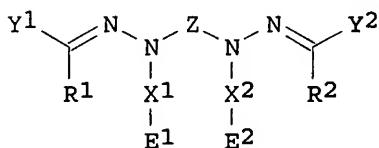
DT Patent

LA English

FAN.CNT 1

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	US 2005147905	A1	20050707	US 2003-749269	20031231
	CN 1637625	A	20050713	CN 2004-10098241	20041130
	JP 2005196203	A2	20050721	JP 2005-290	20050104
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OS	MARPAT 143:106306				

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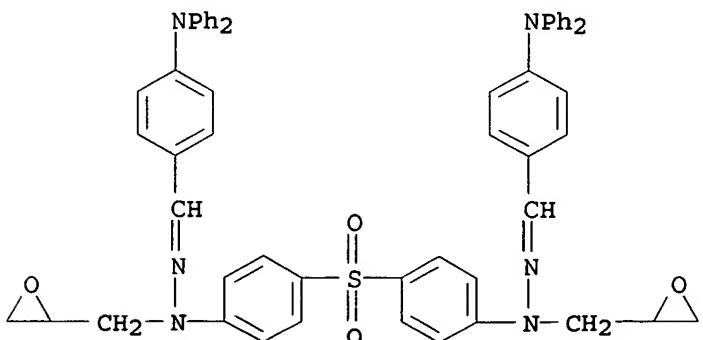


I

AB The present invention provides organo photoreceptors comprising an elec. conductive substrate and a photoconductive element on the elec. conductive substrate, the photoconductive element comprising: (a) a charge transport material having the formula I (Y₁ and Y₂ = arylamine group; R_{1,2} = H, alkyl group, alkenyl group, heterocyclic group, aromatic group; X₁ and X₂ = bridging groups; E₁ and E₂ = epoxy group; and Z is a linking group comprising an alkyl group, an alkenyl group, a heterocyclic group, or an

aromatic group); and (b) a charge generating compound. The charge transport materials can be crosslinked to a polymeric binder, either directly or through a crosslinking agent. Corresponding electrophotog. apparatuses and imaging methods (processes) are described, as are corresponding charge transport materials.

IC ICM G03G005-06
 ICS C07D303-06; C07D405-14
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 ST electrophotog organo photoreceptor charge transport material epoxide hydrazone
 IT Electrophotographic photoconductors (photoreceptors)
 (organo photoreceptor with charge transport material having two epoxide-hydrazone groups)
 IT 857049-30-0P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (charge transport material for organo photoreceptor)
 IT 857049-31-1P 857049-32-2P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (charge transport material for organo photoreceptor)
 IT 14052-65-4P, 4, 4'-Dihydrazinodiphenyl sulfone
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of charge transport material for organo photoreceptor)
 IT 80-07-9, 4, 4'-Dichlorodiphenyl sulfone 106-89-8, Epichlorohydrin, reactions 479-59-4, Julolidine 4181-05-9, 4-(Diphenylamino)benzaldehyde 7570-45-8, 9-Ethyl-3-carbazole carboxaldehyde 7803-57-8, Hydrazine hydrate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of charge transport material for organo photoreceptor)
 IT 33985-71-6P 625077-91-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of charge transport material for organo photoreceptor)
 IT 857049-30-0P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (charge transport material for organo photoreceptor)
 RN 857049-30-0 HCAPLUS
 CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



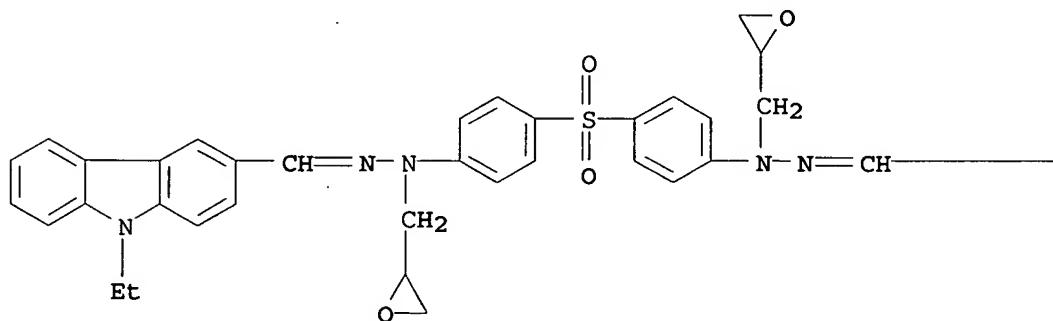
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RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (charge transport material for organo photoreceptor)

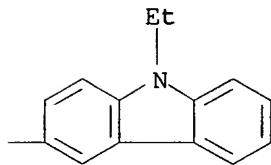
RN 857049-31-1 HCPLUS

CN 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)

PAGE 1-A

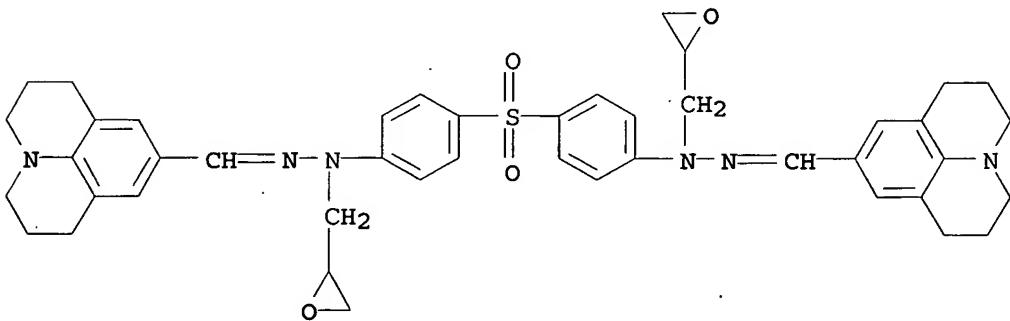


PAGE 1-B



RN 857049-32-2 HCPLUS

CN 1H,5H-Benzo[ij]quinolizine-9-carboxaldehyde, 2,3,6,7-tetrahydro-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

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